

# **CHESS PLAYER 2150**

## **INTRODUCTION**

Chess Player 2150 is far-and-away the strongest and most versatile chess program yet, with the most advanced 3D graphics and the widest range of features available. Chess Player 2150 began its career with an impressive 1st place in the 1989 British Open Computer Chess Championship.

It has a massive 96,000 byte library of opening moves and an incredible ability to learn through its play by the addition of strong moves to its openings library. It thus becomes a tougher and meaner opponent the more times you challenge it.

It is incredibly fast, and you can determine the level of play by setting its response time in many different modes to give literally thousands of possible levels. A special range of 'easy' levels is provided for beginners.

Chess Player 2150 will even predict your next move and then use your move time to consider its response.

It's the first and only computer chess program to have achieved candidate master status with an estimated rating well over 2000 ELO points. It offers the unique facility of assessing both your, and its own, chess rating on the international ELO scale.

It understands all the laws of chess including under-promotion, draw by repetition and draw by the fifty move rule. It can also achieve all the standard mates, in particular those occurring with minor pieces in the endgame, and is well able to handle difficult pawn promotions.

## **LOADING**

- Set up your ATARI ST in the usual way. Refer to your Owner's Manual if required.
- Switch on your monitor or TV, then your ST.
- Place the Chess Player 2150 program disk in the drive. The GEM Desktop will then appear. Move the mouse arrow over the box labelled 'Chess.PR3' and click the left mouse button twice (very quickly). When the 2D board appears the game is ready to play.

## **PROBLEMS**

If you experience any problems with this software, please carry out the following procedures:

- Make sure you are following the loading instructions correctly.
- Please switch off your ST from the mains and disconnect any external drives or upgrades and try re-loading.
- If problems persist, please try another piece of software that you know to load and work. If this software still loads and runs, then return the faulty software to your dealer, stating the exact problem(s) encountered.

**NOTE:** We suggest that you ensure the disks are copy protected. Refer to your Owner's Manual if required.

## **MOVING PIECES**

When the game starts, use the mouse to position the arrow over the piece you want to move and click once. You can now move the piece to the desired destination square. Click once on the mouse to drop the piece on the square. If the move is a legal one, the mouse arrow will reappear.

If you pick up a piece and change your mind about moving it, just move it back to its original square and click once.

## **DROP-DOWN MENU**

In order to give a more pleasing display, the normal drop-down menu is turned off until you wish to access it. Do this by moving the mouse pointer to the top of the screen. During disk access or speech output, menu access is switched off.

Menu items may be disabled if their usage is inappropriate (eg. TAKE-BACK a move at the start of the game). In general, most menu items will be available from the BOARD-DISPLAY screen.

## **SPECIAL MOVES**

**CASTLING:** Just make the king move, Chess Player 2150 will move the rook for you.

**EN PASSANT:** Just move your pawn to its destination square (one behind the pawn you are capturing 'in passing').

**PROMOTION:** If your pawn reaches the opposite end of the board, Chess Player 2150 will query you for promotion to queen, rook, bishop or knight.

**SET TIME, TAKE-BACK MOVE:** and many other features are available from the menu.

## VIEW MENU

ITEM	DESCRIPTION
3D/2D	Flips between a 2D and 3D board view.
Pieces Palette	Load alternative 3D piece sets. Change the colours of the pieces and board.
Perspective	View the 3D chess board from many differing perspectives, by 3D rotation about its centre. You can also control the size of the 3D chess board.
Co-ordinates	Show standard chess co-ordinates on the 2D chess board.
White-Up	White plays from the bottom.
White-Down	White plays from the top.
White Left	White plays from the left.
White Right	White plays from the right.

## CONTROL MENU

**SWAP SIDES:** Use this to make Chess Player 2150 start a game as white. It forces the program to play the next move and also restores normal play from the SUPERVISOR and SELF PLAY options.

**SELF PLAY:** Chess player 2150 will play a game against itself, until stopped as above.

**SUPERVISOR:** Allows human v human play, where Chess Player 2150 will supervise play and allow only legal moves.

**MOVE NOW:** Interrupts Chess Player 2150's thinking and forces it to play its best move found so far.

**FORWARD:** If you have loaded a stored game from disk, or have taken a move back, FORWARD will allow you to step forwards one move at a time in the computer's memory of the game.

**REPLAY:** Will return to the start of the game, allowing you to replay it using the FORWARD option.

**AUTOMATIC:** Plays FORWARD automatically until stopped by the Esc key.

**TAKE BACK:** Takes back one move. You can 'take-back' as many moves as needed, until the start of the game if you so wish.

**NEW GAME:** Starts a new game. You may wish to SAVE the old game first as its record in memory will be lost when the new game begins.

**LEARNING:** If on (check mark), Chess Player 2150 will add moves it considers strong to its opening library. This learning process, through library

extension, takes place after the result of the game is known and involves writing to the opening book folder on the disk. If you are going to use this feature, we advise that you use a back-up copy of the master disk.

**THINKING:** If on (check-mark), Chess Player 2150 will try to predict your next move and use your time to consider its response. It guesses correctly about 30% of the time.

**SPEECH:** If on (check mark), Chess Player 2150 will make audible comments during the game.

**PAUSE MODE:** This pauses the game. To Exit, click on the Return box with the left mouse button.

## SPECIAL MENU

**LOAD GAME:** Any game saved in the GAMES folder on the disk may be loaded and stepped through using the FORWARD option.

**SAVE GAME:** You may save the current game. This facility saves the full move history, allowing complete replay of the game. If you are going to use this feature, we advise that you save to a back-up copy of the master disk.

**HINT:** Chess Player 2150 will give you a suggested move. This option is not available whilst the program is playing from its opening book or when playing in 'easy' mode.

## DISPLAYS

**SHOW INFO/SHOW BOARD:** Flips between the board display and the information screen display.

**THE INFORMATION SCREEN:** This has the following features:

**Tournament clocks:** showing the total time used in the game.

**List of moves:** including the time, in seconds, taken for each move.

**Time:** (in seconds) that Chess Player 2150 is trying to keep to, to play each move.

**Score:** (measured in pawns) for the current best line-of-play. A positive score indicates that Chess Player 2150 thinks it is winning.

**Best line-of-play:** this line will be from 7 to 15 moves deep at tournament time levels.

**Current move:** this is the move the program is thinking about and its iteration number.

## TECHNICAL FEATURES

**WHAT IF?:** This is a powerful and unique feature. It allows you to investigate lines of play within the



game tree of moves. You can discover whether the search algorithm finds a line you may be interested in and why (or why not) it rejects it. For example, you may think the program has just missed a checkmate chance. You could take back that last move and use 'What-if?' to enter the line-of-play you consider interesting.

The dialog box will prompt you to enter the line-of-play (up to ten moves deep) and its 'iteration number'. *[The computer searches again and again with a progressively greater search depth until reaching a time control. This progressive searching is known as iterative deepening.]*

The 'What-if?' function slows down the search, so you may want to temporarily select 'Infinite time' to observe fully the results.

If Chess Player 2150's search comes across the selected line-of-play, it will display it in its window. Clicking on the CLOSE button will close the window. Another window should then open as the same line-of-play is analysed nearer the start of the line-of-play.

Suppose you entered E2E4 E7E5 G1F3.

The window displays: E2E4-E7E5-G1F3 finds the line.

Next window is: E2E4 B8C6 D2D4  
B8C6 is preferred.

This tells you that the program found your line-of-play but preferred a different one. If you really think that Chess Player 2150 rejected a strong line, please let us know. We can use the information to improve the program still further!

You will note the minus sign appearing between two of the moves. This denotes the depth at which a decision about the line-of-play is being made. Normally you will see windows with lines-of-play showing the minus sign falling back to the start of the line-of-play. If one of these windows is missing, it is because the program thinks the selected line-of-play is so inferior it won't look at it further!

If no window is displayed at all, this will be because your line-of-play was not found, it may have been illegal, too deep for the search, or rejected as uninteresting lower down the line-of-play. In these last two cases try again, but with fewer moves in the line-of-play (or larger iteration number), until the search finds it.

When you've finished with this feature, call up the dialog box and cancel it. If you do not, strange, though not fatal, effects may occur!

## GRADING

**YOUR GRADE:** This unique feature gives you an assessment of your chess grade on the internationally recognised ELO scale. You are presented with a series of twenty four chess positions, for each of which you will need to suggest up to four candidate moves.

On the basis of your replies, Chess Player 2150 will estimate your current grade. You should allow yourself about two minutes per position. This grading function has been tested on a number of chess players of known strength and gives quite accurate results.

**GO TO NEXT:** Available only when 'your grade' or 'my grade' are selected. Skips the current position.

**TERMINATE:** Available only when 'your grade' or 'my grade' are selected. Abandons the grading assessment and starts a new game.

**MY GRADE:** Chess Player 2150 will attempt to solve the above positions, according to its currently set time allowance. Chess Player 2150 itself, scores well in excess of 2000 ELO at two minutes per move, placing it in the candidate master class, an exceptionally impressive achievement for a personal computer chess program.

Computer chess theory suggests that a doubling of speed (or time allowance) gives a further 100 points on the ELO scale. You could test this yourself for Chess Player 2150 by grading it at different time allowances.

## YOUR OPPONENT

**SET TIME:** Allows you to set Chess Player 2150's level of play.

**WEAK OPPONENT:** you can select ten separate levels from 'orangutan' to 'gorilla'. These levels are most suitable for complete beginners. 'Orangutan' plays legal chess moves selected virtually at random, rather like playing coffee-house chess. 'Gorilla' selects the best available move, found without using any search look ahead. The intermediate levels have a greater or lesser chance of playing weak moves.

**STRONG OPPONENT:** Chess Player 2150 selects its move according to its exceedingly powerful search algorithm. You should enter the average time (in minutes and seconds), you would like the program to play each move.

## PLAYING MODES

*There are four play modes to choose from:*

**TOURNAMENT:** This is the strongest level of play. Chess Player 2150 averages out its time for each move according to its time spent so far in the game. Thus if Chess Player 2150 has been quickly playing moves from its long opening library and/or correctly guessing your next move, it can then afford to spend more time on its moves during the later stages of the game. Conversely, if you play Chess Player 2150 into a difficult position, it will spend more time trying to get out of trouble and subsequently speed up on its following moves.

**AVERAGE:** Chess Player 2150 will try to stick to the selected move time for every move.

**MATCHING:** Chess Player 2150 will spend roughly as long thinking about its moves as you spend thinking about yours.

**INFINITE:** Chess Player 2150 will think indefinitely, until you interrupt its thought with MOVE NOW.

## OTHER FEATURES

**SET CLOCKS:** This allows you to adjust the computer's built-in clock to match the mechanical tournament clock, when playing in a tournament. To avoid causing massive confusion to the program's time controller, the dialog box allowing you to do this will only appear at the start of the next move.

One interesting and unique feature allows the program to automatically query its operator every few moves whether the computer time is in step with reality. We use this feature in computer chess tournaments where games are played against the clock. This is useful when playing computer v computer tournaments.

**SET DRAW:** By default, Chess Player 2150 treats drawn positions as equal. This unique feature allows you to use a strategy often favoured in tournament play. You may want the program to avoid draws at all costs: select DRAW/LOSE, or you may want to set the program to play for a draw: select DRAW/WIN. Various permutations of these extreme positions are catered for.

**ALTER:** This allows you to modify the position for the setting up of a problem, or to handicap a game, by removing the queen for example.

Any piece (or delete piece) may be picked up from the menu and 'clicked' onto the desired square.

Chess Player 2150 will test for impossible posit-

ions (more than eight white pawns, no king, king of side to move in check etc). and prevent you from playing on from such a position.

**LOAD TEST POSITION:** Available from the 'Alter' menu. Allows you to enter any one of the 24 test positions used for the ELO grade assessment.

**PRINT MOVES:** If you inadvertently use this feature without a printer connected, Chess Player 2150 will notice and, after a time delay, return you to the game.

**WHO ARE YOU?:** Personalise the display.

**ABOUT CHESS:** Chess Player 2150 immodestly describes its victorious test results over other chess programs.

**QUIT CHESS:** Return to the operating system.

## PLAYING STRENGTH OF CHESS PLAYER 2150

We estimate the rating of Chess Player 2150 running on a standard machine to be around 2087 on the ELO scale, or 185 on the BCF (British Chess Federation) scale. This places it in the 'Candidate Master' or 'Strong Club Player' class and is the only Personal Computer Chess program able to claim such a high rating.

To convert from BCF to ELO, we used the formula:  $\text{ELO} = \text{BCF} \times 8 + 600$ . To convert from ELO to USCF (United States Chess Federation) you should add around 100 points to the ELO rating.

## CHESS PLAYER 2150

During program development, Chess Player 2150 was tested against several other 16-bit chess programs.

These games are all saved on the master disc and can be played through using the 'load' game option.

Chess Player 2150 is the finest personal computer chess program in the world.

